

NETWORK WORLD

THE CONNECTED ENTERPRISE

FEB. 27, 2012

SKY IS THE LIMIT WITH PaaS

Platform-as-a-service market remains fragmented, but clear leaders should emerge within the next year or two.

10 POWERFUL COMPANIES TO WATCH

POWERFUL
COMPANIES
TO WATCH

vice president of the
services team at Bullhorn,
is bullish on PaaS.

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FROM THE EDITOR | JOHN DIX

Cisco bounces back

Cisco has been crowing about its rebound, and with good reason. What a difference a year makes. As CEO John Chambers said to a small group of reporters pulled together at Cisco TelePresence facilities around the country last week, it's a lot more fun to be giving a company update now than it would have been at this time last year. (For more from the roundtable with Chambers, see "Cisco: Customers drove us to block Microsoft/Skype," page 10.)

If you'll recall, a year ago Cisco's stock was getting hammered as the company posted lower than expected sales, profit and margin numbers, and was wrestling with multiple concurrent product transitions.

So Cisco got to work. Early last year the company named its first ever chief operating officer, simplified its complex management council structure, reorganized sales, shuffled some bodies in engineering, laid off 6,500 employees, killed its Flip consumer video business, and sold its CATV set-top box factory in Mexico to outsourcing giant Foxconn, shifting some 5,000 workers in the process.

"Reinvention is hard," Chambers says. "We have done this five or six times over the last two decades, but it is still hard. It has been a traumatic 15 to 18 months."

But it is working. In Cisco's fiscal second quarter earnings call a few weeks ago Chambers announced the company had achieved its goal of eliminating a \$1 billion in expenses a quarter earlier than expected and had driven revenue up 11% in the quarter compared to the same period last year. In terms of core product categories, switching sales grew 8% and high-end routing was up 11%.

He blames last year's setback, in part, on the cost performance advances inherent in the company's largest-ever product portfolio refresh. "That hit the bottom line more than expected," he says. But otherwise he is bullish on Cisco's ability to execute.

"We normally see things two to four quarters ahead of our peers," he says of the company's ability to recognize big transitions. "And most of our big bets on these transitions have pretty much come through." As evidence he points to leadership positions in VoIP and big gains in videoconferencing.

Even the company's bold gamble on servers is paying dividends. Cisco's Unified Computing Environment is now a \$1 billion product line and sales grew 91% in the last quarter alone, Chambers says. Cisco has more than 10,000 UCE customers, which would indicate many are small shops, but Chambers says 55% of UCE volume goes to large enterprises.

What's coming up next? Among other things, Chambers says we can expect to see Cisco get more active in mergers and acquisitions, and for the company to flesh out its security architecture and put more meat on it.

Chambers is the first to admit there is more work to be done, but the \$45 billion company seems to be back on track and ready for the next round.



John A. Dix

6 Bits Comments, Blogs and Online

10 Trend Analysis Cisco: Customers drove us to block Microsoft/Skype.
BY JIM DUFFY

10 Trend Analysis MWC: Network operators get serious about Wi-Fi.
BY JOHN COX

12 Trend Analysis Security managers remain skeptical of BYOD.
BY ELLEN MESSMER

14 Q&A IBM's top net exec talks strategy.
BY JOHN DIX

16 'Net Insider A low cost for partial security.
BY SCOTT BRADNER

17 Tool Shed Gearhead Diagnosing DSL. Again.
BY MARK GIBBS

18 Cool Tools HP high-def webcam makes you look better in the conference room.
BY KEITH SHAW

20 Special Edition Enterprise Cloud Services: A world of PaaS-ibilities 10 most powerful PaaS companies (page 24); The sky is the limit with PaaS (page 26).
BY CHRISTINE BURNS

34 Backspin Cellphones, bees, Apple and sacrifice.
BY MARK GIBBS

34 Net Buzz A 1985 gift to Jobs meets 2012 copyright law.
BY PAUL McNAMARA

peersay

Give something up to telecommute? Hah!

→ I TELECOMMUTE FULL time. Since moving into my home office, work-related expenses have gone up dramatically. Not only is my house turned on 24/7, I have to maintain a higher level of Internet access and home network equipment than I would need for just personal use. I'm told I'm saving money on clothes and gas, but that isn't true either. Most of the time I'd ride my bike to work (five miles), and I still get dressed in the morning (Re: "What would you give up to telecommute? A raise? Vacation time? Spouse?"; tinyurl.com/7kdcyy6).

Add on the fact that I'm expected to be able to work at all hours day and night, and I'd say there is definitely a price I'm paying for the privilege.

Allen

RSA algorithm flawed?

→ SAD TO SEE respected cryptographers slip into hyperbole (Re: "Crypto experts analyze millions of X.509 certificates, call RSA crypto flawed"; tinyurl.com/778njyr).

What on earth can it mean to say "1024-bit RSA provides 99.8% security at best"? Security is a multi-dimensional and relative state of affairs. It cannot be measured by any single number. And there's no such thing as "full" security, so "99.8% secure" is deep nonsense.

And consider this emotive passage: "What surprised us most is that many thousands of 1024-bit RSA moduli... offer no security at all."

We security geeks preach that nothing is ever 100% secure. But equally, very few things are 0% secure. So it's very poor form to describe those keys as providing "no security at all." It will still take a non-trivial effort to exploit the weaknesses exposed by the authors.

Stephen Wilson

→ PKI IS BESET by at least the following alleged issues that impair its mission (Re: "RSA brushes off crypto research findings that RSA algorithm is flawed"; tinyurl.com/7atu934).

1. Is there such a thing as a perfect random number generator? I do not think so, because an algorithm by its nature produces a predictable result if discovered.

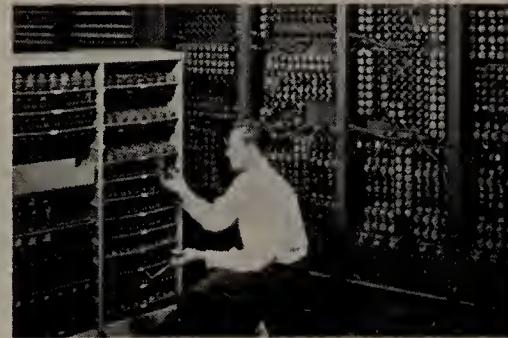
2. There is a huge demand for its use, thanks to the bad guys that abuse it.

3. Exaflop supercomputers do not need years of trial and error to decrypt a PKI encoded message, especially if they have a "Rosetta Stone" sample that already is decrypted. If an information source uses the same key combination for everything it encrypts, they might as well not bother to encrypt anything.

4. People take shortcuts and get careless, thereby exposing private keys.

5. Is there any location that can store private keys safely where no one can find them, yet make them available for use? I do not know of any.

Wisesooth



Looking back at ENIAC

→ I WAS THE engineer in charge of the maintenance of the ENIAC from 1951 to 1953. This is a picture of me changing vacuum tubes while troubleshooting and repairing the unit. I still have schematics of the ENIAC that we used at that time (Re: "ENIAC, world's first digital computer, turns 66"; tinyurl.com/7nzdz94).

Joseph Cherney

Battle of the cheap tablets

→ THE REAL QUESTION that should be asked is about content. Which offers more open use of the content you purchase from the vendors and which has a bigger better purchase library, and which has better content prices from the vendors (Re: "Battle of the cheap tablets: Nook Tablet vs. Kindle Fire"; tinyurl.com/7cnkdwh)?

That being a wash, I think that the comment regarding the memory card slot, which is a key portability/storage issue when you are not on a network, is a key advantage for the Nook. Cloud is great and so are pre-fetches, but they are not important if connectivity is not your focal point. Then battery life and memory cards are king.

papabear3rd

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Carrier Ethernet 2.0 aims for global connectivity

THE METRO ETHERNET Forum has updated its Carrier Ethernet specification in an effort to help carriers more easily manage and share Ethernet traffic. "With Carrier Ethernet 2.0, we're expanding quality of service well beyond best effort, and will now allow carriers to interconnect to provide worldwide [Ethernet] service," said Bob Metcalfe, inventor of Ethernet and now professor of Innovation at the University of Texas. The new specification provides guidance for setting up multiple class-of-service (Multi-CoS) definitions, which will allow carriers to establish more nuanced service level agreements. CE 2.0 provides a richer set of management metrics, and it also sets the stage for multiple service providers to exchange Ethernet traffic in a uniform fashion. "Carriers have been managing interconnections [with] bilateral negotiations on a carrier-by-carrier basis. These standards will further enable interconnections to be achieved on a more cost-effective basis," said MEF Chairman Mike Volgende. tinyurl.com/7nbljud

PHOTO: ANDREW DAVIS TUCKER/SHUTTERSTOCK

Windows Server 8 to be storage-focused OS

WINDOWS SERVER 8, the beta of which is expected out in the next several weeks, is the most storage-focused OS release to date, according to Microsoft. The new OS will support Hyper-V and SQL Server running over the Samba file sharing protocol SMB v2.2, including remote direct memory access (RDMA) over Ethernet and InfiniBand. RDMA allows servers, through special NICs, to access the memory of other servers without the use of the operating system, offering very

high-throughput, low-latency networking for server clusters. "Think about going over the network for storage to get better performance, but your CPU [use] doesn't go up," said Jim Pinkerton, a partner architect in Microsoft's File Server Technologies development group. tinyurl.com/7nd6lvn

App stores to require, disclose privacy policies

PRIVACY POLICIES will become more readily available to mobile users, thanks to a new agreement between the state of

California and major mobile platform providers, including Apple, Google, Research in Motion, Amazon, HP and Microsoft. Although the plan technically only applies to apps in use in California, it will affect the global marketplace by making privacy policies visible to all users who download apps through the Android Marketplace, the App Store or any of the other platforms hosted by the participating companies. Just 5% of all mobile applications offer a privacy policy, according to a study conducted by Truste and Harris Interactive. Even those that have such policies often only make the information available after users have downloaded the app, which is when most programs grab data from the user's phone. tinyurl.com/7cht6vm



IT VIDEO

Real, radical robots

Check out a virtual gallery of cool robot videos in this *Network World* slideshow, including a hockey-playing robot, a robot that can sketch your face, and a robotic arm made from Legos. tinyurl.com/6pzq5cx

Juniper buys Web security company for \$80 million

JUNIPER HAS acquired Mykonos Software, a provider of website and Web application security software, for \$80 million. Juniper already offers products designed to protect against known attacks, but Mykonos develops deception-based software to protect against zero-day attacks and advanced persistent threats. Mykonos' software is designed to catch an attack in progress, profile the attack, learn the attacker's behavior, and then use that behavior to thwart future attacks. tinyurl.com/6wx4uwk

PARITY BITS

1.2 BILLION

The number of new Ethernet ports shipped in 2011, 800 million of which were Wi-Fi.

SOURCE: IDC

The world is not yet cloud friendly

THE U.S. is the fourth friendliest country in the world for global cloud interoperability, according to a new study from the Business Software Alliance. But, the organization said a "patchwork" of laws and regulations around the world is holding back cloud adoption internationally. In a ranking of the 24 countries that account for 80% of the world's information and telecommunications technology, the BSA found that Japan, with its comprehensive privacy protections, robust IT infrastructure

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GOOD BAD UGLY

Sturdier clouds

MICROSOFT IS spending about \$130 million to build a new data center in Dublin, as it needs more room to run cloud services there, the company said. The expansion is a direct result of increased demand for cloud services such as Office 365, Windows Live, Xbox Live, Bing and Windows Azure in Europe, according to Microsoft. Separately, Apple has bought a vast sprawl of land in Prineville, Ore., where it will open a data center. The data center will be built on a 160-acre piece of land that Apple bought for \$5.6 million.

Verizon LTE goes out – again

VERIZON'S 4G LTE network was knocked offline Feb. 22, just two months after its last serious outage. Verizon first acknowledged reports of the outage on its official Twitter account at 10:10 a.m., saying it was "investigating customer issues in connecting to the 4G LTE data network." Verizon said that its 3G data network, its voice and its SMS services were all "operating reliably" during the LTE outage. The company posted an update at 1:21 p.m. informing users that the LTE network had been fully restored "after a brief issue this morning." Verizon did not say what caused the outage.

iPhone bringing out the criminal in people

NEWS REPORTS out of Charlotte, N.C., last week indicated a "known suspect" swiped 25 iPhones from an Apple Store at Northlake Mall between Dec. 1 and Jan. 11. The *Charlotte Observer* and WCNC cited a Charlotte-Mecklenburg police report that read: "The iPhones were stolen from the Genius Room located inside the store. The suspect did have access to the Genius Room." The booty: \$16,425 worth of devices, including 22 16GB iPhone 4S models, one 32GB 4S, one 64GB 4S and one 8GB iPhone 4. Separately, the *New York Post* reported last week that an 81-year-old man was shoved onto the tracks at a Brooklyn subway station after chasing a teen who allegedly stole his iPhone.



blood

bad

ugly



A stylized illustration of Uncle Sam pointing directly at the viewer with a stern, commanding expression. He wears a top hat with a star pattern and a dark coat. The text "WIN \$10K" is overlaid in the upper left corner.

I WANT YOU FOR THE OPEN-SOURCE APP CONTEST

IF YOU have an idea for an app that can help businesses grow and create jobs, the U.S. Department of Commerce wants to hear about it. The agency last week kicked off a \$10,000 app development contest that asks developers to come up with creative ways to tap the Fed's underutilized data stores for the benefit of American businesses. "By challenging developers to leverage government data in new and innovative ways, they'll help businesses fund new activities, learn about and evaluate opportunities in the U.S. and abroad, support education and training, and more," the contest announcement says. Competition judges include Secretary of Commerce John Bryson, U.S. CIO Steven Van Roekel, Facebook COO Sheryl Sandberg, and Vint Cerf. tinyurl.com/76s74og

and strong intellectual property standards, is the top nation for an integrated cloud marketplace. Behind Japan are Australia, Germany, the U.S. and France. Near the bottom of the list are some of the world's emerging economies, including China, India and Brazil, which the BSA said "have the most work to do to integrate themselves into the global cloud market." tinyurl.com/6og4f7k

DRAM prices plunge to all-time low

PRICES OF DDR3 DRAM memory used in laptops and desktops have dipped to an all-time low of

around \$1, a massive drop from the average price of \$2.25 for the same 2GB DDR3 DRAM die in the first quarter last year, according to research firm iSuppli. A 4GB DRAM module was priced between \$18-\$20 at the end of 2011, a precipitous drop from \$40 at the end of 2010. "We're at a historical all-time low," said Mike Howard, senior principal analyst at iSuppli. "It costs Dell and Hewlett-Packard less now than a year ago to put the same amount of memory in the PC." Some PC makers, including Dell, say they're using the savings to cover the rising cost of other components such as hard drives, which were in short supply due to last year's floods in Thailand.

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Cisco: Customers drove appeal of Skype deal

BY JIM DUFFY

CISCO'S APPEAL of the European Commission's approval of the \$8.5 billion Microsoft/Skype union is customer driven, Cisco CEO John Chambers said this week.

Addressing a small group of reporters via telepresence at Cisco facilities around North America, Chambers said customer desire for interoperability forced Cisco to appeal the EC ruling. Cisco issued its appeal last week, citing interoperability concerns between Microsoft/Skype and its own video offerings as well as those from other vendors.

Cisco and Microsoft are fierce competitors in unified communications and collaboration, and the prospect of Microsoft adding Skype and its user base to the Microsoft Lync collaboration platform has Cisco scrambling to slow the deal and seek concessions.

"We have a tremendous amount of respect for Microsoft," Chambers said. "We are going to compete aggressively in collaboration, and partner in data center. Customers expect us to interoperate and work together. Microsoft does not see that as importantly as I do. But it's what we are hearing from customers. They don't only want you to interoperate but expect you to."

Cisco had to release its own Telepresence Interoperability Protocol (TIP) as a condition for closing on its multibillion dollar acquisition of Tandberg, which made Cisco the market leader in videoconferencing. Many in the industry believe Cisco is looking for Microsoft to do the same before it can proceed with Skype integration.

"We have always gone with open standards, it's the right thing to do on the video side," Chambers said.

Chambers says the new trend of employees bringing their own devices (BYOD) into the workplace to access corporate data and applications makes interoperability critical.

"With BYOD ... interoperability is at the forefront more now than ever," he said. "Microsoft thought interoperability was very important with telepresence and Tandberg. I think it's in Microsoft's interest to interoperate in the long run. Each of us, if we miss market transitions, it will cost us over time. Service providers don't want this [incompatibility] either. They want any device to access any content. Is this really an important trend? I think it is. If you make the pie bigger, I'll take smaller slice but I'll increase my profits."

Cisco was rumored to be eyeing its own purchase of Skype last year before the Web video company went public. Chambers confirmed



“Customers expect us to interoperate and work together. Microsoft does not see that as importantly as I do.”

JOHN CHAMBERS, CISCO CEO

that Cisco did take a look at Skype but the company could not see a fit for its customers.

"We had a chance to make that acquisition a very long time ago," he said. "But it would be difficult for our service provider customers to benefit from. [Forgoing the acquisition] was the right decision then and the right one now. We bet on video six years ago. It'll be the next form of communications and IT. We're believing service providers will be a key differentiation."

Chambers also denied reports this week that Cisco is looking to sell its Scientific-Atlanta set-top box business, acquired Scientific-Atlanta for \$7 billion in 2005.

Chambers stressed that the set-top box is a vital component to Cisco's cloud-based video strategy — which the company calls Videoscape — and he adamantly denied that Cisco is looking to sell off the business.

"Do we believe [video IT] is going to occur? Yes," he said. "Can you imagine anyone believing us not being in the set-top box business? After growing 23% last quarter? Can you imagine what our service provider customers would do if we left that business? To move out of the market as a leader and the market's evolving as we hoped, it'd be [foolish] to leave that business."

"We have a lot of weaknesses and I have a lot of weaknesses as a leader," he continued. "Disinformation is occurring at a more frequent pace. We don't bluff. We don't say things we don't mean. If we think a trend is very key, we're going to make a statement. We will play it out for what we think is right for the industry. The movement would occur gradually. [Selling Scientific-Atlanta] is an issue that is not even discussed at all at Cisco. It's so strategic to our future direction, I'm surprised it keeps getting challenged. This is mainline for [some of our customers]."

MWC: Network operators get serious about Wi-Fi

BY JOHN COX

The world's cellular industry is coming to Barcelona, Spain, this week for Mobile World Congress. But one of the key topics will be an entirely different radio technology: Wi-Fi.

At MWC, you'll be seeing a massive change in the industry's thinking about this unlicensed radio standard, now a standard part of smartphones, tablets, gaming devices, and even cameras. Faced with soaring mobile data demand, a range of network and service providers want to "tame" Wi-Fi, making it behave as conveniently, predictably, and reliably as cellular phone calls. Among other things, that change could spell the end of "free Wi-Fi."

"There's a re-emergence of the relevance

of Wi-Fi," says Andrew Borg, research director enterprise communications at consultancy Aberdeen Group.

Borg says carriers are turning to Wi-Fi in part to make use of unlicensed spectrum to offload data traffic from stressed 3G and even 4G networks, in areas dense with users and devices. But perhaps more important, the carrier embrace of Wi-Fi is an attempt to re-establish themselves as more than just a data connection. "Look at all the services and content being delivered on the mobile Web, by 'over-the-top' vendors like Google and Facebook," Borg says. "Carriers have become a dumb pipe and don't share in the revenue being generated by that content."

New gateway technologies and industry

► See **MWC**, page 30

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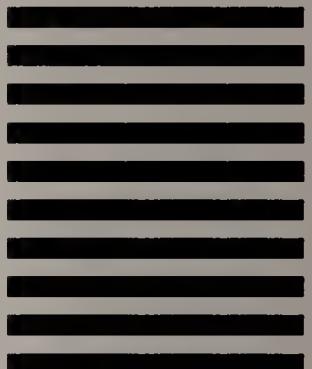
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Security managers remain skeptical of BYOD

BY ELLEN MESSMER

COMPANIES ARE grappling with the question of whether and how to let employees use their own smartphones and tablets at work even as a huge push is being made to set up internal “app stores” of approved and custom-built corporate mobile apps.

“We identified our needs, and we’re planning on custom mobile apps,” says Lincoln Cannon, director of sales and marketing technology at Merit Medical Systems, a maker of medical equipment in Utah.

The company has few reservations about allowing employees to use Apple iPads, including their own, to present information to business customers and allow access to cloud-based services, such as Google Docs, where product-related documents and videos are placed. While a few apps from the Apple App Store have worked out, the business has determined that to really gain the functionality it wants on the iPad to synchronize with its salesforce systems, it needs to design some apps on its own.

Merit Mobile is the first in-house customized app the technology team came up with for Apple iOS 4.0, for the salesforce group. “They open the app and it checks whether new content is available,” Cannon said. It’s typically used to download new content overnight so the latest information in the form of brochures, videos and more is ready for them.

Having to get an Apple software developer’s license and certificate for designing apps was “a little time-consuming” and “painful,” he notes. But in the future, if the coding is done in HTML5, there won’t be the need for the Apple certificate, he adds.

Merit Medical is hardly alone in its decision to build custom apps. According to the Symantec 2012 State of Mobility Survey of 6,275 technology managers in the private and public sectors in 43 countries, 71% “are now looking at implementing a corporate ‘store’ for mobile applications.” The report notes that 11% have already set up an internal app store for line-of-business applications.

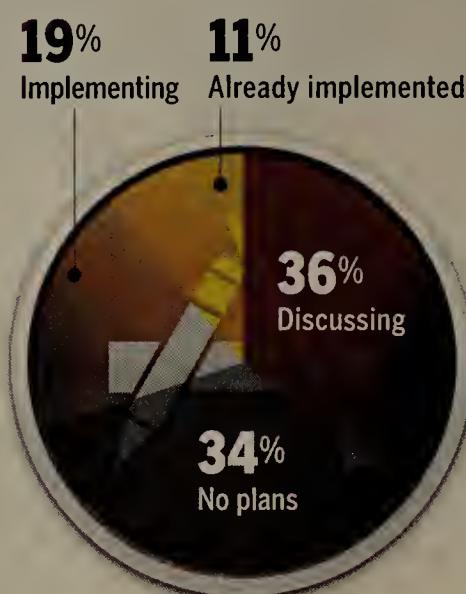
Complicating factors

For others in the healthcare industry, the pressure to figure out a suitable mobile strategy seems to be far more difficult to sort out. At Kaiser Permanente, with medical groups and health plans and more than 150,000 employees, IT security has held to a traditional discipline of tight controls that eschews the idea of employee-owned mobile devices.

“The security group has set definite

Who needs the Apple App Store?

Symantec recently asked technology managers whether their organizations have plans to roll out a private “app store” where employees can get officially supported applications for their mobile devices.



SOURCE: 2012 STATE OF MOBILITY SURVEY ASKED THIS QUESTION OF 6,275 TECHNOLOGY MANAGERS IN 43 COUNTRIES

standards,” says Mark Kadrich, senior security architect at Kaiser Permanente, who says his role is to help define strategy in cooperation with a separate security group responsible for ongoing operational needs. If outside contractors, needed to connect to the Kaiser network, they have to use the Cisco Connect VPN client for Wi-Fi, for example.

But the debate between bring your own device (BYOD) and corporate-owned mobile devices has now taken center stage.

“The clinicians were pushing to get iPhones and iPads, and the security group was pushing back,” Kadrich says. Executive staff decided to tackle the BYOD question by setting up a Mobile Center of Excellence staffed by Kaiser employees to identify standards for what might be accepted use of iPads and Android devices, including employee-owned ones. Several hundred iPad and Android tablets are undergoing pilot tests

as software and security needs are explored.

Kadrich acknowledges having strong reservations about the idea of BYOD, based on both cost and security. Mobile-device management (MDM) software is often viewed as a way to have some control over these devices for inventory and remote-wipe purposes, but Kadrich remains skeptical. “I’m not convinced MDM is cost-effective or appropriate,” he says.

Because the need for building custom apps for clinical and business use is apparent, the question is how to start this software development process in a way that will enforce a high level of security assurance both in-house and with outside software developers. Kaiser Permanente is in negotiations with mobile-software vendors, asking them to define what processes they use to identify and track business flaws in software. This takes the process beyond the iTunes and Android store approach, in an effort to define strict coding practices for an in-house apps store. There is momentum around BYOD, and Kadrich says that one day it is likely to be a component in Kaiser Permanente’s IT strategy.

Skepticism shared

Like Kaiser Permanente, a number of IT consultancies have expressed doubts about whether BYOD is cost-effective. Although it may look at first glance as though a company is saving money by having employees buy their own mobile devices, perhaps with a corporate stipend, there are management costs that may not work out to the company’s advantage. Aberdeen analyst Hyoun Park notes that telecom rate plans cost less through traditional contract negotiations than through individual contracts.

As far as cost savings go, “the jury is still out on BYOD,” says Joe Nocera, principal in the IT security risk practice at PricewaterhouseCoopers. He thinks the BYOD “promise of cost-savings” is largely “unrealized” today.

BYOD raises questions about security controls and how forensics will be done on a device owned by the employee, Nocera notes. He also is skeptical about how far MDM software goes to meet strict security requirements. “Its functionality is very limited,” he says. “All they do is secure email fairly well.”

The goal has to be securing the data on the device and having a way to validate it through risk assessments, he says. In regulated industries, such as healthcare and finance, there will be audits of these BYODs and the apps that are used, Nocera points out. Unfortunately businesses are thinking about these questions only after they’ve rolled out BYOD practices. ■

VIEWPOINT



Benny Kirsh

VICE PRESIDENT AND CIO,
INFOBLOX, INC.

Benny Kirsh, vice-president and CIO of Infoblox, previously held several Executive CIO positions and was directly responsible for the successful implementation of major transformation projects. As CIO of The Cooper Companies, he led a team of IT professionals and was responsible for all Global IT strategic planning and execution. Prior to that, he was the first CIO at Kyphon, where he was responsible for building a growth-focused IT foundation.

FOR MORE INFORMATION on leveraging IT automation to gain faster time to value, check out the Webcast **"The CIO's view: Time to Value through Automation"** at www.networkworld.com/webcasts/infobloxvalue

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The CIO's View: Delivering Time to Value Through Automation

In August 2011, Benny Kirsh was named VP and CIO at Infoblox, an industry-leading developer of network infrastructure automation and control solutions. With more than 25 years of experience, Kirsh is responsible for driving strategic advancements via the company's IT infrastructure and applications. Now more than ever before, IT professionals like him are being asked to deliver strategic value by responding quickly to dramatically changing business demands. But in today's tight economy, they must do so with flat budgets and staffing levels. IDG recently sat down with Kirsh, who explained how corporations can meet those conflicting business imperatives.

Time to Value has become a catchphrase in IT today. What does the term mean to you? Traditionally, IT has enabled companies to change the way they do business. Investments in IT were high, with cutting costs and a positive ROI as the main objectives. Now,

they expect the same level of responsiveness from IT. Second, technology is becoming more complex, so we must constantly simplify the management of our systems. Third, because of changing business needs, IT is required to do more with less. And finally, we are expected to provide a high level of quality solutions fast enough to support new business initiatives. Balancing all these different drivers requires us to be more creative and innovative.

How is automation beneficial in improving your ability to deliver Time to Value?

Automation speeds up Time to Value. The biggest benefit is to the network. Infoblox's solution successfully reduced the complexity of our network and consolidated all the information gathered from different network devices and different vendors onto one pane of glass for our network engineers to work with. In the past, experienced network engineers had to perform routine, time-consuming mainte-

"Automation is key to realizing faster Time to Value."

the focus is on getting projects done faster, meaning shortening lead times and responding to changing business needs speedily. With businesses promoting themselves in dynamic ways, IT has to be agile enough to accommodate rapid changes. In the past, a rollout of solutions was a periodic event with long lead times. Today, public and private clouds and the consumerization of IT have changed expectations. So for us CIOs, Time to Value means rolling out systems and new solutions faster with shorter lead times – while remaining focused on cutting costs. As a business partner, IT has to understand the needs of the business and stay ahead of the curve, introducing new technology as needed and being a catalyst for change within the corporation.

As a CIO, what are the challenges you face in delivering Time to Value?

The four challenges are quite clear. First, business units' expectations are increasing. During lunch, employees download an app from the cloud for \$50, and they are up and running.

nce activities, such as upgrades or bug fixing. Increased automation lets us hand these tasks to our junior engineers and/or the IT support group, freeing up senior staff to work on more strategic initiatives. That drives costs down and delivers a better Time to Value.

Please tell us about your experience implementing automation at Infoblox.

By embracing the private cloud for speedy deployment of computer power, we are providing the Engineering department with the capability of self-provisioning virtual servers without IT involvement. Using the private cloud in IT, we recently deployed a new reporting tool that would previously have taken weeks. Now, thanks to virtualization and the automated provisioning of IP addresses provided by the Infoblox solution, it took just days. The move from manual processes to self-provisioning has enabled the IT team to support our organization's changing business requirements. Automation is key to realizing faster Time to Value.

IBM's top net exec talks strategy

IBM reversed course on networking in 2010 when it acquired Blade Network Technologies, one of its key network suppliers. Network World Editor in Chief John Dix and Managing Editor Jim Duffy recently caught up with Vikram Mehta, founder of BNT and now vice president of IBM System Networking, for an update on IBM's network visions going forward.

IBM divested its network operations more than decade ago, so why did it decide it had to get back into the business?

IBM divested its network business in 1999 and acquired BNT in 2010, so interesting question. As enterprises have increased their reliance on IT to run their business the amount of infrastructure has gone through the roof. And what customers have come to realize is that, given the scale and the pace at which they need to deploy infrastructure, the old model of build your own using best of breed servers, best of breed storage and best of breed networking, just became untenable.

They said look, our core business is insurance or banking or running an airline or what have you, we need credible technology suppliers to put the entire solution together. IBM has a tremendous brand in servers, a tremendous brand in storage, but increasingly customers look at these systems as a combination of hardware, software and services and IBM was missing one key component which was networking so it was incredibly important for IBM to have a strong point of view on that.

It seems like an endorsement of what Cisco has been saying with its Unified Computing System, that the fabric is core to these new blade architectures. What we are endorsing are two things. First, full compliance to standards and interoperability without compromise. And second, avoiding rip and replace. Now, when we look at several other vendor offerings in the market, they fall short on both of these measures, and we think this is bad for customers.

I have never heard a customer say come and put your hands around my throat and choke me with proprietary technology. So one of the things we're professing as part of this integrated systems approach is, first and foremost, no proprietary stuff. We're going to rely very heavily on standards. And secondly

we're going to be really respectful and mindful of customers' existing IT investments and try to embrace what they have versus the Cisco approach of rip and replace. Same thing say with HP's matrix issues built around Virtual Connect.

The irony of this is pretty rich coming from IBM.

The masters of proprietary technology. Absolutely. I spent a dozen years at HP and used to joke about how IBM systems were open so long as every system in the network was provided by IBM. And I don't mean this in a cocky manner, but having invented this proprietary lock in thing decades ago, we understand the perils of it.

Can customers of IBM's RackSwitch and BladeCenter switches use any blade server or rack mount server they want?

Yes. As a matter of fact we have customers around the world buying top-of-rack switches from IBM System Networking, previously BNT, and deploying them with Dell and HP and even Cisco servers.

What's IBM's take on data center network fabrics?

I think this is another point of differentiation for us because when companies like Cisco or Juniper are talking about fabric they're coming at it from a pure networking-only perspective. Our perspective is a little bit different in that the fabric is the entire infrastructure. There are compute elements in that fabric, storage elements in that fabric, function-specific appliance elements in that fabric. We try and address the fabric very holistically and I think that is a key differentiator.

The second key differentiator is where you put the intelligence. Juniper puts all the intelligence out at the edge in the QFabric. Cisco's strategy is the exact opposite, with all the intelligence in the core. Our approach is you



Vikram Mehta

put the intelligence in the entire IT infrastructure, the entire IT fabric is the function of the type of applications that you are running.

A third key differentiator is our fabric storage is, again, not proprietary. What if you have a 3Com switch or a Brocade switch, how do you move virtual machines from Point A to Point B? Cisco can't do that. Juniper can't do that. With our approach if a customer has IBM System Networking top-of-racks and the core could be Cisco, 3Com, whatever, and you can move virtual machines from one rack to the other. We're not just saying that the network is a fabric, the entire IT infrastructure is a fabric.

Juniper is vocal about the idea that we have to minimize latency by minimizing the number of hops between two resources. Do you see the same need?

We agree with that, but what we don't agree with is where people make the leap of faith in saying the only way you can minimize the number of hops is by buying everything from one vendor.

Are you still supplying top-of-racks switches to Juniper?

We certainly are. As a matter of fact, when it comes to low-latency solutions, their low-latency solution is sourced from IBM.

Is IBM still endorsing Juniper's QFabric approach?

They are a strategic partner for IBM. There are some customers that have expressed an interest in building an integrated IT infrastructure server/storage/networking with a preference for QFabric and IBM certainly supports that. It's hard for a company the size of IBM to have a purest model where this guy is a pure competitor and that guy is a pure partner. Look at System Networking's relationship with HP or NEC. We compete on the service side yet we supply networking components for the HP BladeSystem or the NEC SigmaBlade.

Does IBM support any specific standards for flattening network architectures in the data center, like TRILL or Shortest Path Bridging?

We are very much behind TRILL.

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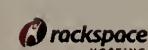
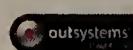
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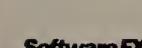
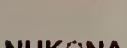
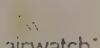
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A low cost for partial security

OUT OF the blue, Apple just announced Mountain Lion, the next generation of its OS X operating system. By the time Mountain Lion ships sometime next summer, Apple says it will have lots of new features, some transported from its iOS environment of the iPhone, iPad and iPod Touch world. This column will examine just one of the new features, one that, while good, has not yet included all the functions of its iOS prototype.

Apple iOS performs a validity check on each application before the app runs. The check verifies that the application came from a trusted source and has not been modified. In the case of iOS, the trusted source must be the Apple iOS App Store. This check makes it much harder for the iOS device to be corrupted by a rogue application introduced by a computer virus. But it also locks the iOS device to only get new or updated applications from the Apple-run store. Apple controls what you, the titular owner of an iOS device, are permitted to run. With a collection of a half million applications in the App Store, this control over the user has been more of a theoretical than a practical problem.

Apple is now adding a poor man's version of this validity check to OS X in the form of Gatekeeper. Gatekeeper does the same validity check as the iOS system but only does it when an app is first installed, and then only if the application is downloaded over the Internet. As described, Gatekeeper will be able to be run in three modes. The default mode will permit applications to be installed from the OS X App Store (not to be confused with the iOS App Store) and from developers who have registered with Apple as long as the applications have not been modified since they were created. Gatekeeper will also be able to be run in a stricter mode where it will only permit applications from the OS X App Store to be installed or an open mode in which applications are not checked before installation. The last mode is equivalent to the way OS X currently operates — you can install applications from anyone,

including applications from developers that Apple has never heard of.

The reaction to Apple's announcement has been decidedly mixed. On the security side, some pundits seem to be from the branch of computer security that feels security is worthless unless it is perfect. These pundits dismiss Gatekeeper as almost worse than worthless because it only does the validity check when the software is installed. Checking only at the time of installation will not discover software that gets modified after installation and does not deal with the case where an application's bad behavior is only discovered later. Performing the validity check every time the application is run will catch modified applications and, because Apple can distribute a list of bad software developers in real time, it can block applications newly discovered to be bad.

I think the security provided by Gatekeeper is worthwhile but do hope that Apple changes to a check-before-running from the current check-when-installing operation before Mountain Lion is distributed.

The other area that some pundits have focused on is the one of lock-in. They are worried that this is the next step in a progression that would wind up with OS X being as closed as iOS. While there is no current reason to think that is in Apple's plans, it does bear watching.

By the way, it turns out that Apple included Gatekeeper in Lion — just use the terminal command "sudo spctl — enable" to turn it on, and "sudo spctl — disable" to turn it off.

Gatekeeper is only a step along the path to better OS X security, but a useful one, as long as it is not also a step along a path to an Apple-knows-best future.

Disclaimer: I know of no one at Harvard who would complain about improved security, but I know of no university opinion on the topic. So the above is my own review. ■

Bradner is Harvard University's technology security officer. He can be reached at sob@sobco.com.

q&a

is TRILL or TRILL-based?

Absolutely, because we believe that approach will enable customers to leverage existing infrastructure which may or may not be from IBM, and that only through the adoption of standards can you truly lower cost.

What's IBM's position on FCoE?

Truth be told, I think you'll find different answers at IBM depending on who you talk to. But let me give you a customer perspective and tell you what we're doing from a product perspective. There are two parts to an FCoE solution. There is a lossless Ethernet transport and there is supporting the Fibre Channel protocols on top of that. Those Fibre Channel protocols could either be basic NPIV or it could be full director class switching. We have been supporting lossless Ethernet transport ever since we got into the top-of-rack business, which was late 2008. Starting in the first half of 2012 we will start to enable customers of our lossless Ethernet top-of-rack switches to break out Fibre Channel and connect to their favorite Brocade or Cisco Fibre Channel.

What's you're higher growth

product line, the rack switches or the Blade Center switches?

When we started off in 2006, as the name of the company suggested, we were providing networking for blade server systems. In 2008 we expanded into top-of-rack and went from blade being 100% of our business to top-of-rack being 50% of our business, so it's a very, very high growth area for us.

Maybe we can end here with your thoughts about OpenFlow. Where do you see that going?

One of the proof points around how serious IBM is about open systems is our support for OpenFlow. We have partnered with NEC to work on OpenFlow, and NEC was a founding sponsor of the OpenFlow lab at Stanford University. We've since expanded that partnership and actually have several commercial successes in the OpenFlow space.

Now here's the stuff that really scares the bejesus out of the likes of Cisco and Juniper: a technology like OpenFlow taking off and breaking down the proprietary paradigm. IBM is as serious about OpenFlow as it was about Linux, and I think our track record

with Linux speaks for itself. You can expect us to do the same thing when it comes to OpenFlow networking.

To what end? What are the expected benefits?

Similar to the benefits people associate with Linux. You get a community of people developing the technology, vs. just relying on the rate of innovation from a particular vendor. And I think OpenFlow will dramatically reduce the cost of networking products. I mean, companies today are still charging over \$1,000 per 10G port at list prices. We think it should be south of \$100, and in the next couple of years, south of \$50.

I think things like OpenFlow will force some of that to happen, much like Linux did in the operating system world. Look at the impact Linux had on the whole Microsoft server movement and the domination there of a few players. I think OpenFlow holds that same promise, will really challenge those with 60%, 70% market share in the networking world. If you think TRILL has some of these vendors running scared, I think OpenFlow is a bigger challenge. ■

TOOLS

Diagnosing DSL. Again.

In the last 11 years I have moved house three times. Each time I have purchased Internet service from AT&T and each time AT&T has managed to make establishing service an epic struggle that consumes hours of my time, leaves me without service for days or weeks, and drives me to the edge of homicidal despair.

I don't have space enough in this column to relate the full details of this latest AT&T saga, but the result is, as of today, while I should have an AT&T asymmetrical DSL U-verse service delivering a download rate of, theoretically, 6Mbps, what I have is more of a probabilistic service ... "probabilistic" as in, "I wonder when it will stop working?"

My service problems fall into three types: First, the service keeps failing roughly once per day for anywhere between two to four hours; second, the service has sometimes failed to deliver more than 50% of the packets sent, resulting in an effective halving (or worse) of the data rate; and, third, when the service stabilizes after one of these multi-hour outages, the download line speed is configured to a rate of under 800Kbps.

When my service first started vanishing I realized I needed to document what was going on so I fired up that old Gearhead favorite, PingPlotter, published by Nessoft.

I've written about PingPlotter a couple of times before and my description still stands: "PingPlotter is essentially good ol' *nix traceroute with a pretty face and muscles."

So I started running PingPlotter and found that the next hop after my Motorola NVG510 ADSL2+ router, which would be a digital subscriber line access multiplexer (DSLAM) at the central office (CO), wasn't responding to about 70% of all pings, even though other routers in the path to my target server, att.com, were responding.

This was odd and a sign something was wrong, as ISPs' routers usually either respond or don't respond (they are often set up to not respond to "unnecessary" requests to maximize performance). Just

ignoring some random percentage of pings indicates a problem and, lo and behold, after my first round of complaints an engineer was dispatched to the CO and changed my line card in the DSLAM. Now all pings to the first hop were generating a response.



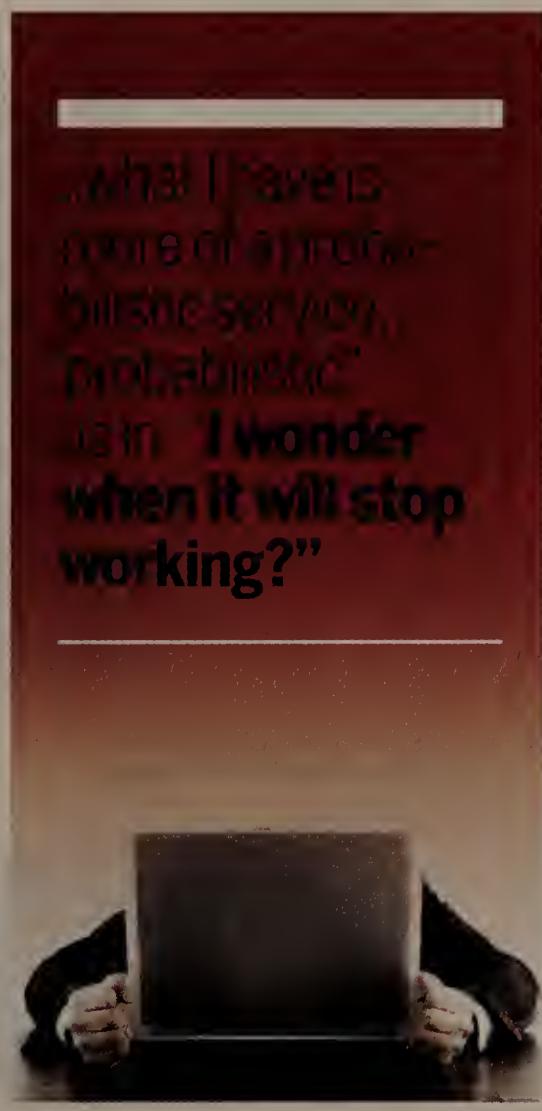
Mark Gibbs' Gearhead

Alas, this wasn't the end of my problems. My line performed fine for a few days then on two consecutive days it stopped working completely for three or four hours. Then it worked for a few days, then it stopped at random times for a few hours. There was no rhyme or reason for this behavior and all of my calls to customer service went through the same scripted drudgery to reach no conclusion other than someone was going to be sent somewhere to do something. I'm now waiting for a senior tech dispatched by AT&T's Office of the President (yes, I managed to get my "pain" escalated) to come and figure out what is going on ... or rather, what is not going on.

The third type of problem is different from the others in that it appears that a DSL line reset for whatever reason can result in the line being misconfigured, such that you don't get the data rate you contracted for. I suspect that when such a thing happens to most consumers they probably have no idea that the service they're getting is not the service they paid for.

These consumers might see, and be annoyed and frustrated by, significant lag when playing online games or their Netflix streaming video halting and buffering, but the cause won't be obvious. I'd guess that if and when they call AT&T customer service they will be led through the usual script and at some point the customer service representative will ask them to reset the modem, after which their problem will be magically solved! No one, especially the consumer, will have a clue what the real problem was.

You can, however, determine your DSL performance by interrogating your DSL modem ... which we will discuss next week. By the way, PingPlotter, once again, gets a Gearhead rating of 5 out of 5. ■



Gibbs is not well-connected in Ventura, Calif. Try to ping him at gearhead@gibbs.com. You can always follow him on Twitter (@quistuipater) and on Facebook (quistuipater).

GADGETS

HP high-def webcam makes you look better in the conference room



Keith Shaw's
Cool Tools



HD 5210 Webcam

by HP, about \$100

► **What it is:** This USB webcam includes an integrated H.264 video processor, which helps produce higher-quality video calls and video recording than other webcams (both external and internally integrated into a notebook). Other features include dual noise-canceling stereo microphones; three “quick-launch” buttons for recording, video calling or uploading to social sites; and a pan-and-tilt option for 360-degree viewing during a call or recording session. A still camera can shoot 13-megapixel digital images, and recording videos support 1080p resolution (video calls via Skype or Google Chat, however, can only record in 720p). HP says its TrueVision technology can improve the video image in low-light situations, and the camera has a nice auto-focus feature and face-tracking ability (via bundled software). The software includes a control center app (for launching various webcam-related tasks), a visual effects program (for cute things like adding borders or funny images during your chats) and basic video and photo editing software.

► **Why it's cool:** If you're using a desktop system or notebook that doesn't have an integrated webcam, this provides you with the latest HD resolution for making video calls or recording yourself at the computer. Even if you own a notebook with an integrated webcam, the higher video quality may entice you. In our tests, the HD 5210 produced better video images than our integrated webcams (a 1.3-megapixel camera that claimed 720p support, but we had doubts), which made me look washed out during video chats.

The auto-focus was nice, especially compared with older webcams that you'd have to manually adjust to try to get a somewhat crisp image. The higher-quality camera also comes in handy if you want to record a lot of video for uploading to social sites — if you regularly blog and want to add a video component, having a better webcam makes you look a lot more professional.

The 360-degree swivel function is nice if you have a bunch of people with you during a video call; they don't have to scrunch together to be seen by your recipients.

The dual noise-canceling microphones were also a plus. Sound quality was vastly superior to the internal microphone on my system, although I'd still recommend using a headset during video chats to avoid feedback during a call.

► **Some caveats:** I was disappointed in the flexible grip stand — it seems geared more toward mounting on a flat-panel monitor rather than the back of a notebook display. This caused some issues where if I moved the USB cable, the camera would move or fall off. The recording software was OK —

I could record a video clip, but then needed to convert it to a different video format before importing into the iMovie video editing software I use. Despite the H.264 support, it still needed the conversion. Also a letdown: no Mac support on the camera.

► **Bottom line:** If you plan on using a webcam on a daily basis, the HD 5210 is a high-quality device that should enhance your video calls and recorded content. If you're just using a camera for the occasional video chat, though, the integrated camera on your notebook should work just fine.

► **Grade ★★★★ (out of five).**

Shaw can be reached at kshaw@nww.com. Follow him on Twitter @shawkeith.





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Page 22

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Page 24

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Page 26

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BY CHRISTINE BURNS

THE OVERVIEW

Enterprise developers looking to tap into platform-as-a-service (PaaS) offerings over the next 18 months will not want for choice. In fact, one could argue that the existence of so many choices is creating confusion and inhibiting the growth of PaaS.

Gartner has estimated that the worldwide PaaS market will reach \$927.3 million this year. The biggest segment of the market (pulling down 38%) is what Gartner calls aPaaS — or application PaaS — which is defined as a service that offers functionality similar to that of an application server in the traditional on-premises software architecture sense.

A distant second in Gartner's forecast is iPaaS — a suite of cloud services enabling development, execution and governance of integration flows between any combination of on-premises and cloud-based processes, services, applications and data. From there, the PaaS categories get broken down into application life-cycle PaaS, business process management PaaS, database PaaS and messaging PaaS, to name only a few of the "other" market segments.

What further complicates the PaaS menu is that vendors jockeying for position in this space can't be neatly categorized. Most deliver a variety of services that span Gartner's segmentation. Take PaaS power player (see "10 most powerful PaaS companies," page 24) Salesforce.com, for example. It's got its own foot in four segments, sometimes with multiple offerings. Partners building services on top of the Salesforce.com platform play in still

A world of PaaS-ibilities

Platform-as-a-service market remains fragmented, but clear leaders should emerge within next year or two

other categories. Microsoft's Azure PaaS conglomeration touches on four PaaS segments, as does IBM's portfolio, and Google registers in three.

Even seemingly razor-focused startups like CloudBees, which has pinned its early success on bringing both existing and new Java-centric applications into the cloud (see case study, page 26), play in multiple PaaS segments. CloudBees CEO Sacha Labourey considers this type of breadth a competitive advantage. "What we're offering is complete, end-to-end life cycle management for Java-based cloud applications," Labourey says.

It makes perfect sense for vendors to be scrambling to cover as much PaaS ground as possible because — as Gartner and several other competing analyst firms contend — the market currently stands at the cusp of several years of strategic growth, hitting \$1.755 billion by 2015. Industry watchers predict there will be an eventual aggregation of PaaS offerings into suites that are both well integrated and optimized. Gartner says this process will take place in steps with PaaS functionalities consolidating around certain use cases circa 2013 with integrated, comprehensive PaaS offerings emerging in 2015.

"Whoever owns the platform this year will own the cloud for the next 10 years," says Kamesh Pemmaraju, head of marketing for Cloud Technology Partners, a cloud computing consultancy.

Pemmaraju divides the PaaS playing field into public and private sectors. Public PaaS vendors — companies like Salesforce.com with Force.com and Google with App Engine — are the most mature in his

estimation. "You just subscribe to these services and access them through a Web browser. You own nothing. You just jump in," Pemmaraju says.

Zimmer, a leading global manufacturer of medical products such as orthopedic reconstructive tools, spinal and trauma devices and dental implants, made the jump early last year. The company had issues delivering timely information to its sales reps and customers, and turned to Salesforce.com's Force.com platform to help build highly mobile and interactive information-sharing applications that could operate in both connected and disconnected modes. Zimmer partnered with mobile cloud services specialist Model Metrics (which has since been acquired by Salesforce.com) to create — in just 12 weeks — an iPad application that shares the latest information on Zimmer products as well as new techniques to utilize them both in the office and in the operating room.

Zimmer's Global CIO Raj Kushwaha says the time to deploy the new project was even further reduced because the company was already in the middle of a Salesforce.com CRM deployment, so the new application was deployed at the same time.

"We went from prototyping on 30

machines to a full deployment on 3,000 machines in just eight weeks, which still is amazing to me," Kushwaha says.

Alternatively, under Pemmaraju's explanation of the market, private PaaS is a slower roll. Private PaaS is better for customers who fear loss of infrastructure control, have specific requirements for securing data, and have data location issues because they operate on an international scale.

The players in this emerging part of PaaS are long-standing application development platform providers such as Microsoft, IBM and Oracle, all of which are tapping into their existing developer bases to build cloud-enabled applications on private clouds or in public/private hybrid environments.

But for corporate coders getting pressure from upper management to tap into PaaS for bottom-line business gains, the choice really comes down to an age-old developers' dilemma: Do you want ease of use and automation or do you want breadth of control?

Says Red Hat's Jimmy Guerrero, dubbed the "PaaS Dude" by the loyal Linux following (his real title is senior product marketing manager of the company's OpenShift open source PaaS project), "PaaS is no different. If you want it to provide a high



RAJ KUSHWAHA, GLOBAL CIO, ZIMMER

"WE WENT FROM PROTOTYPING ON 30 MACHINES TO A FULL DEPLOYMENT ON 3,000 MACHINES IN JUST EIGHT WEEKS."

level of automation so you can get it out the door quickly, you're going to have a lower degree of management." And if you need to have a lot of control over the platform, then it's not going to be easy to use.

Forrester Research analyst John Rymer says the biggest transformation in the PaaS landscape this year lies in the fact that enterprise customers are no longer looking at the cloud as a place to solely deploy brand-new applications. And most of the PaaS providers are answering that call by "taking a more pragmatic approach to moving existing enterprises into the cloud" by supporting more development environments and more underlying infrastructure-as-a-service (IaaS) platforms, Rymer says.

Cloud Technology Partners' Kamesh agrees, saying the two emerging developments to watch in this more "open" PaaS arena are two open source PaaS projects: Cloud Foundry, launched in April 2011 and spearheaded by VMware; and OpenShift, announced in May 2011 and driven by Red Hat.

Both companies have trusted roots in the enterprise with their respective underlying server virtualization and virtualization management software suites, so it makes sense for them to attempt to migrate to the cloud from that vantage point, Kamesh says.

Jerry Chen, vice president of cloud and application services for VMware, says, "We want to facilitate the multi-cloud approach to building and running applications." He argues that a corporate developer should be able to build an application in a micro-cloud on a laptop, deploy it in a private cloud for testing, move it to a public cloud provider and relocate it to another public cloud provider if terms prove to be more palatable there.

"The race is certainly on between Red Hat and VMware. The winner of that contest will be the company that can build the biggest development partner ecosystem around their platform," says Rymer, who wouldn't hazard a guess to which company that would be. ■

Burns is a freelance writer and editor who has over 15 years experience covering the networking industry. She can be reached at cburns1227@googlemail.com.

PaaS forecast

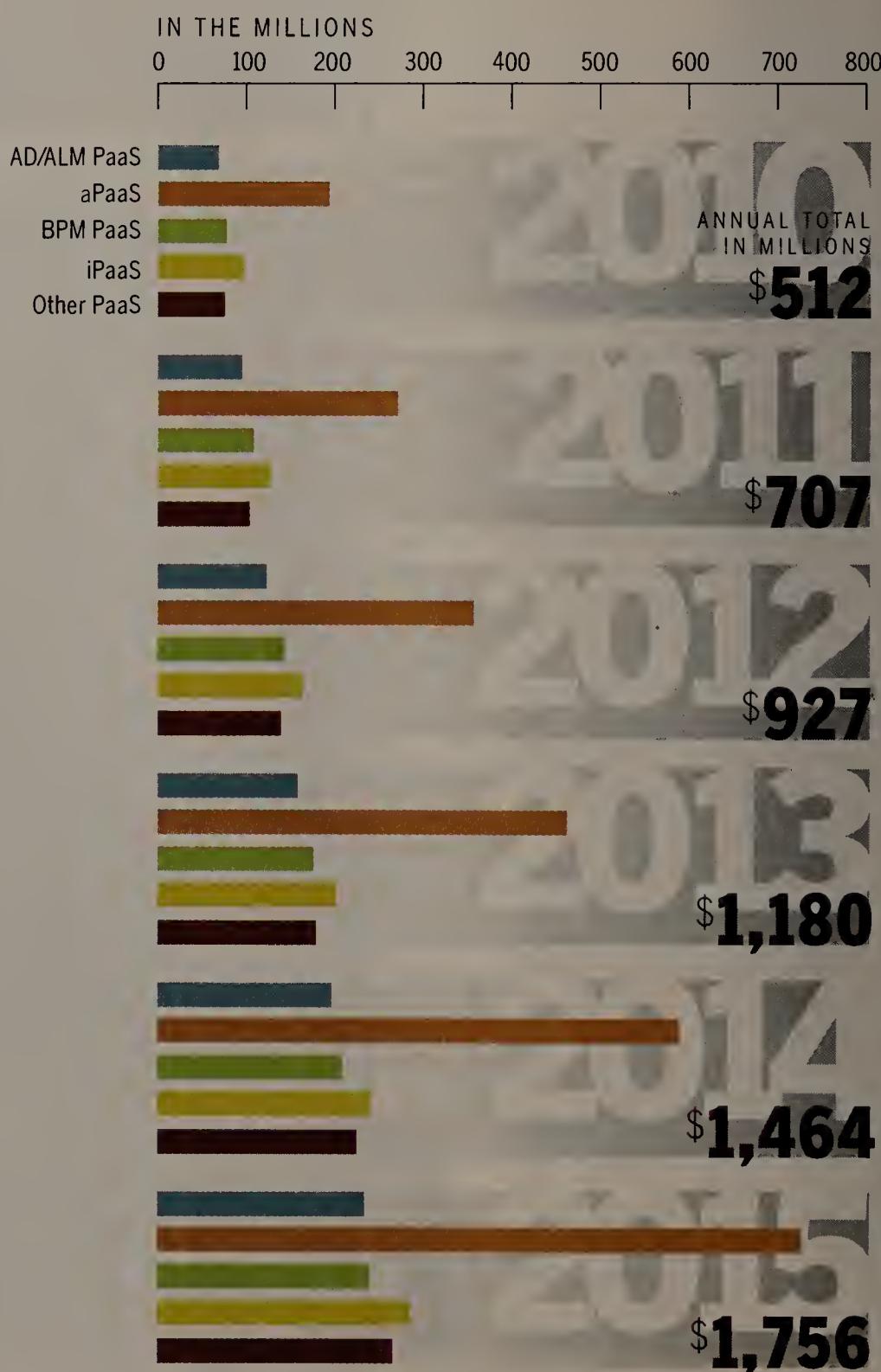
Gartner segments the PaaS market into 4 subcategories and one miscellaneous bucket.

AD/ALM PaaS includes segments such as integrated development environment services, application life-cycle management (ALM) services and lab management PaaS.

aPaaS represents application platform functionality offered as a service. The functional aim of aPaaS is similar to that of an application server in the traditional on-premises software architecture.

BPM PaaS refers to the delivery of a BPM technology as a service by a cloud service provider.

iPaaS is a suite of cloud services enabling development, execution and governance of integration flows connecting any combination of on-premises and cloud-based processes, services, applications and data within individual, or across multiple, organizations.



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10 most powerful PaaS companies

Platform as a service is the least mature of the major cloud services categories. There are multiple types of PaaS, and vendors are playing in more than one subcategory, so it's not easy to tell the players without a scorecard. Here, in no particular order, are 10 companies that have emerged as leaders in the PaaS market.

Amazon

JUST LIKE JACK PLANTED HIS magic beans in solid ground, Amazon has built its application runtime PaaS, Amazon Web Service (AWS) Elastic Beanstalk (now in beta), on the solid footing of the very popular infrastructure-as-a-service platform, EC2.

And while the retailer-turned-cloud provider doesn't necessarily have a loyal developer following, it's continually rolling out new tools to entice them. So far the portfolio includes AWS Toolkit for Eclipse (a plug-in for the Eclipse Java Integrated Development Environment), AWS CloudFormation (a service that lets developers create and provision Amazon resources), several cloud-based database options and SDKs for Android and Apple mobile machines, eRuby, Java, PHP and .Net.

BY CHRISTINE BURNS

2 || Salesforce.com

THE ORIGINAL SAAS GIANT HAS successfully parlayed its prowess down the cloud stack with its double one-two PaaS punch of Force.com's AppExchange and Heroku platform. Right now, the company enjoys the status of market share leader, according to IDG. Salesforce.com touted some impressive numbers to its base at last fall's Dreamforce conference, including the claims that in 2011 3,000 apps were built or installed every 24 hours and that the Force.com platform executes more than 650 million transactions per day.

3 || LongJump

LONGJUMP LANDED IN THE PaaS fray very early on, back in 2008. It has steadily added new features and developer-centric support to attract a customer following that the company says is 600 strong at this point. LongJump's biggest coup came in the form of an AT&T partnership announced in November 2011, in which the telco rolled out a simplified PaaS service geared toward tech-savvy business folks that has the LongJump PaaS stack at its core. Forrester analyst Stefan Ried says this deal could pave the way for more licensing deals for the company.

4 || Microsoft

THERE HAVE BEEN RUMBLINGS that Microsoft's 2-year-old Azure PaaS play is not getting the traction the company had hoped. Microsoft's PaaS portfolio includes the Windows Azure computing environment for applications and persistent storage for both structured and unstructured data; Windows Azure AppFabric, a range of services that connects users and on-premises applications to cloud-hosted applications, manages authentication and implements data management; and SQL Azure, a cloud database service. All Windows-centric, of course, but analysts say that Microsoft is making noises about opening that up a bit. And they say you can't discount the power Microsoft has in its army of .Net developers waiting in the wings to see what the cloud means for them.

5 || IBM

IBM IS A RELATIVELY LATE ENTRY into the PaaS market as it only rolled out SmartCloud Application Services PaaS in October 2011. But the company has long-standing ties to the corporate enterprise, and this platform — based on the long-trusted WebSphere middleware — allows enterprises to build Java-based apps that can run in the public cloud, called IBM Smart Cloud Enterprise, or on premise. IBM is looking to keep its customers in a comfort zone while pushing them out to the cloud.

6 || Red Hat

LINUX LOVERS ARE UNITING behind the thought of an open source PaaS like Red Hat's OpenShift. And industry watchers are intrigued by the prospect of portable applications that can be pulled from one infrastructure platform whose fees or contingencies become arduous and easily placed on another one without breakage. It simply remains to be seen how big an ecosystem Red Hat can build around OpenShift and how useful it will be to corporate developers.

7 || Cloud Foundry

CLOUD FOUNDRY IS THE OPEN source PaaS that was spearheaded in early 2011 by VMware and around which the company plans to build a future commercial product. As with Red Hat's initiative, VMware is attracting developers who want an open platform that lets them build in the language they want and run on the IaaS they like. According to company officials, the project is gaining significant traction because more than 2,100 developers are actively following the changes in the open source code. Analysts have speculated that AppFog, a startup already offering a comprehensive PaaS based on the Cloud Foundry code, is ripe for the picking should the commercial side of Cloud Foundry need a boost.

8 || Google

GOOGLE CLAIMS IT'S GOT 200,000 developers building applications on top of its App Engine PaaS. That's in spite of a rate hike that really got their base riled up back in September 2011, giving all kinds of fodder to competing products that claim to be both more open and more affordable. But Google doesn't seem to be bothered and is forging ahead with an upgrade that supports a premium level of service in which customers will receive a 99.95% uptime service-level agreement.

9 || CloudBees

CLOUDBEES WAS FIRST OUT OF THE gate with a Java-based PaaS that gave enterprises an easy way to move existing Java applications into the cloud. RUN@cloud is the application runtime side of the CloudBees PaaS story, providing traditional application server functionality for Web, Java and Spring applications. CloudBees customers choose their underlying IaaS or private cloud. Applications running on RUN@cloud can be built using traditional Java EE development tools or using CloudBees' second PaaS offering, DEV@cloud. DEV@cloud is a cloud-based development, build and test environment. CloudBees' power lies in its understanding that there are lots of sunk costs in existing Java applications from which enterprises are loath to walk away.

10 || Engine Yard

ENGINE YARD IS ONE OF THE leading PaaS players for Ruby on Rails and PHP developers. These two development languages are most often associated with cool, new greenfield applications running in the cloud. Engine Yard, founded in 2006 and still privately held, has a client list that includes Nike, AOL, Apple, Disney and MTV.

The sky is the limit with PaaS

Cloud-based development platform helps fuel rapid growth at Bullhorn

BY CHRISTINE BURNS

As early as 2008, Bullhorn, a fast-growing Boston-based provider of front-office staffing and recruiting management software, was considering the cloud to help streamline development and distribution of its software-as-a-service (SaaS) products to more than 2,500 customers and 25,000 users in 35 countries.

But Bullhorn's early embrace of platform as a service (PaaS) had more to do with long-standing relationships than with newfangled cloud technologies.

Bullhorn was already heavily invested in Java-based application development and didn't see the cost benefit of migrating away from that language in favor of scripting languages like Ruby, Python and PHP, which are more commonly used in the development of brand-new cloud-based applications. But the company was growing by 40% to 50% year over year and the development team understood it needed to find a way to build more scalable applications.

The Bullhorn engineers were also in tight with the founders of Stax Networks, one of the very first cloud-based Java application platforms running on top of Amazon's EC2 infrastructure as a service (IaaS). So when the well-funded startup CloudBees acquired Stax Networks in December 2010 as the means to accelerate the general availability of its RUN@cloud application runtime PaaS environment, Bullhorn was good to go.

And it went, fast.

In the last year, Bullhorn has implemented more than 60 customized applications on RUN@cloud.

According to Matthew Fischer, vice president of Bullhorn's services team, the company is working on implementing an additional 40 applications on the CloudBees PaaS.

RUN@cloud is the runtime side of the CloudBees PaaS story. It provides traditional application server functionality to the cloud, comprising load balancing, scalability and high availability services for web, Java and Spring applications. CloudBees customers can choose to have as their underlying IaaS any number of public cloud providers.

Applications running on RUN@cloud can be built using traditional Java EE development tools or using CloudBees' second PaaS offering called DEV@cloud. DEV@cloud is a cloud-based development, build and test environment.

Fischer says deploying Bullhorn's existing applications on RUN@cloud has resulted in an 80% reduction in the time his teams — both the internal core development team and the professional services team which builds customized extensions to the Bullhorn product line for customers — spend on resolving underlying cloud infrastructure problems like load balancing, system monitoring and technical integration issues.

"You obviously have to fully understand how the [CloudBees] platform is operating as the developers of applications running on top of it, but you don't have to be the ones tending to all of the DevOps details of scaling it as the company grows," Fischer says.

Some developers were hesitant to give up absolute control over the runtime

MATTHEW FISCHER,
VICE PRESIDENT, BULLHORN

**"WE NOW FOCUS
ON OUR CORE COMP-
TENCY OF BUILDING
INNOVATIVE CODE**

that helps us better address our customers' requirements. The recent success of Bullhorn is tightly tied to the evolution of this PaaS."





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environment in case of some type of outage. "But over time we've proven that PaaS is more reliable because the provider has operations folks that can do that better than we can," Fischer says.

Fischer's teams collectively clock upward of 30,000 engineering hours annually. So being able to turn the bulk of those hours into time spent improving the core product or working with customers justifies the CloudBees metered usage fees, Fischer says.

"We now focus on our core competency of building innovative code that helps us better address our customers' requirements," Fischer says. "The recent success of Bullhorn is tightly tied to the evolution of this PaaS."

Crucial to the company's rapid cloud deployment success is how it has deployed the Bullhorn SDK on RUN@Cloud, which in some cases is deployed in a multi-tenant configuration and other times deployed on dedicated machines should the customer set those types of requirements.

These open Bullhorn SDKs are Java-based applications that contain a robust services layer comprising components such as Spring MVC, XML configuration tools and a set of Web services that interact with Bullhorn's APIs to facilitate communication between the core application and the custom extensions and Web services that Bullhorn engineers or its customers have built.

The Bullhorn SDK also handles data access components and interfaces back to databases in the CloudBees PaaS and enables integration with systems residing within customers' environments.

Taking the next step

Bullhorn has to date focused its efforts on getting existing Java applications up and running on RUN@cloud while still building new applications within its own custom development environment.

"Our priority was to make sure the applications we had in production got the benefit of being in the cloud first," Fischer says.

But Fischer says his team now is actively prototyping new applications using DEV@cloud. The prospect is enticing for logistical reasons — Bullhorn has recently expanded its engineering team and has members of that team working from sites

BY CHRISTINE BURNS

Any corporate application developer hoping to make the journey to the cloud with the help of a PaaS implementation is wise to listen to those who have already ventured down that path.

Be prepared to clearly articulate where you want to go and why you want to go there to the decision-makers in your company, advises Matthew Fischer, vice president of the engineering services team at Bullhorn, a Boston-based maker of recruiting and staffing management software.

"There are going to be folks who might not be up to speed on what PaaS has to offer and they will loathe giving up that control," says Fischer. He alleviated those tensions by explaining that the engineers at his PaaS provider, CloudBees, had more expertise setting up, running and scaling the development environment than his software engineers did.

And you need to tap into that expertise to help you understand how your new applications are working on top of the PaaS, explains Brandon Jirousek, Web content coordinator for the Quicken Arena, the home of the Cleveland Cavaliers NBA team. Jirousek's team contracted with PaaS vendor AppFog for the purposes of deploying Web ticket sales and social networking applications in the cloud on top of Amazon's IaaS.

"Yes, we no longer have to manage our own servers in terms of security, patches and troubleshooting," says Jirousek, but that didn't translate into the team not wanting to understand what was happening when they did run into performance issues. Kamesh Pemmaraju, head of marketing for Cloud Technology Partners, a Cambridge, Mass.-based cloud computing consultancy, says developers should push back on PaaS vendors' claims that coders will no longer have to worry at all about the underlying platform services.

"It's a different skill set. No, you don't have to be allocating the physical servers to make your application scale. But you do have to fully understand how your PaaS is making that happen in order to build a scalable application," says Pemmaraju.

Think about best practices. "No, I mean you really have to think about them, because this stuff is too new to have any established best practice guidelines for you to refer to," adds Raj Kushwaha, global CIO at Zimmer, a leading global manufacturer of medical products such as orthopedic reconstructive tools, spinal and trauma devices and dental implants. Zimmer worked with Salesforce.com to rapidly roll out an interactive iPad application to the company's sales team.

around the world. "Access [to development resources] from anywhere is emerging as an issue we need to address," Fischer says.

Fischer also likes the way DEV@cloud has addressed continuous development cycles. Central to the CloudBees offering is the open source Hudson-based continuous integration scheme — now called Jenkins since Oracle claimed trademark issues with the name — which enables continuous quality control as developers write code and submit the changes to the repository. Each change is tested for quality and integration issues.

"We've never had a continuous integration mechanism in place, but we certainly want it going forward because of all the potential code problems it can alleviate," Fischer says.

Finally, it's important that developers pay close attention to how their PaaS providers are establishing any third-party ecosystem around their platform, Fischer says. "Who a PaaS vendor partners with today may have a direct effect on which tools you have at your disposal tomorrow to build your next-generation product." ■

TIPS FOR A SUCCESSFUL PAAS ROLLOUT

Datacenter's Weakest Link



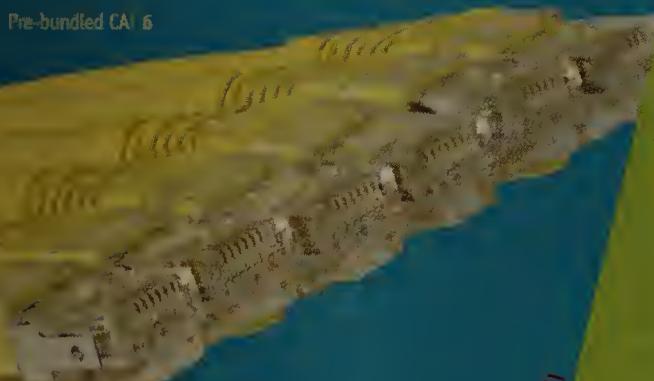
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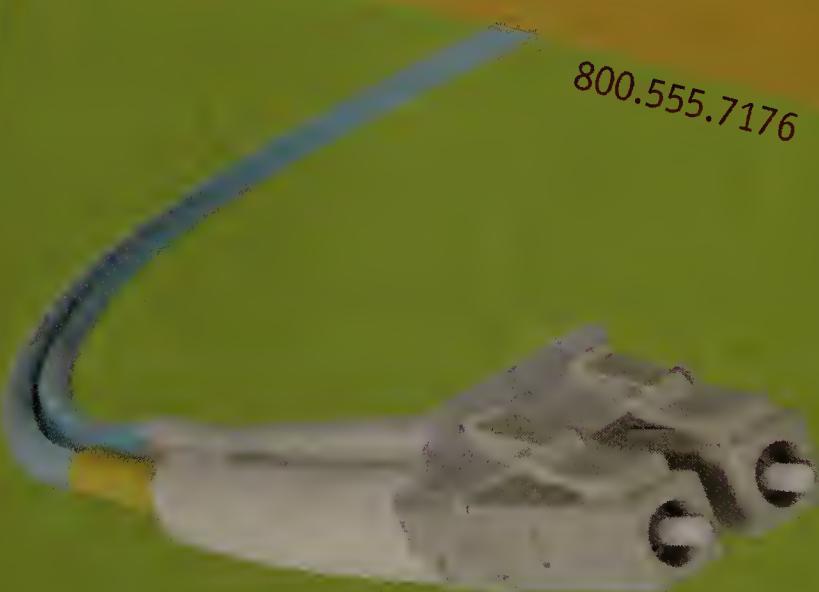
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► MWC, from page 10

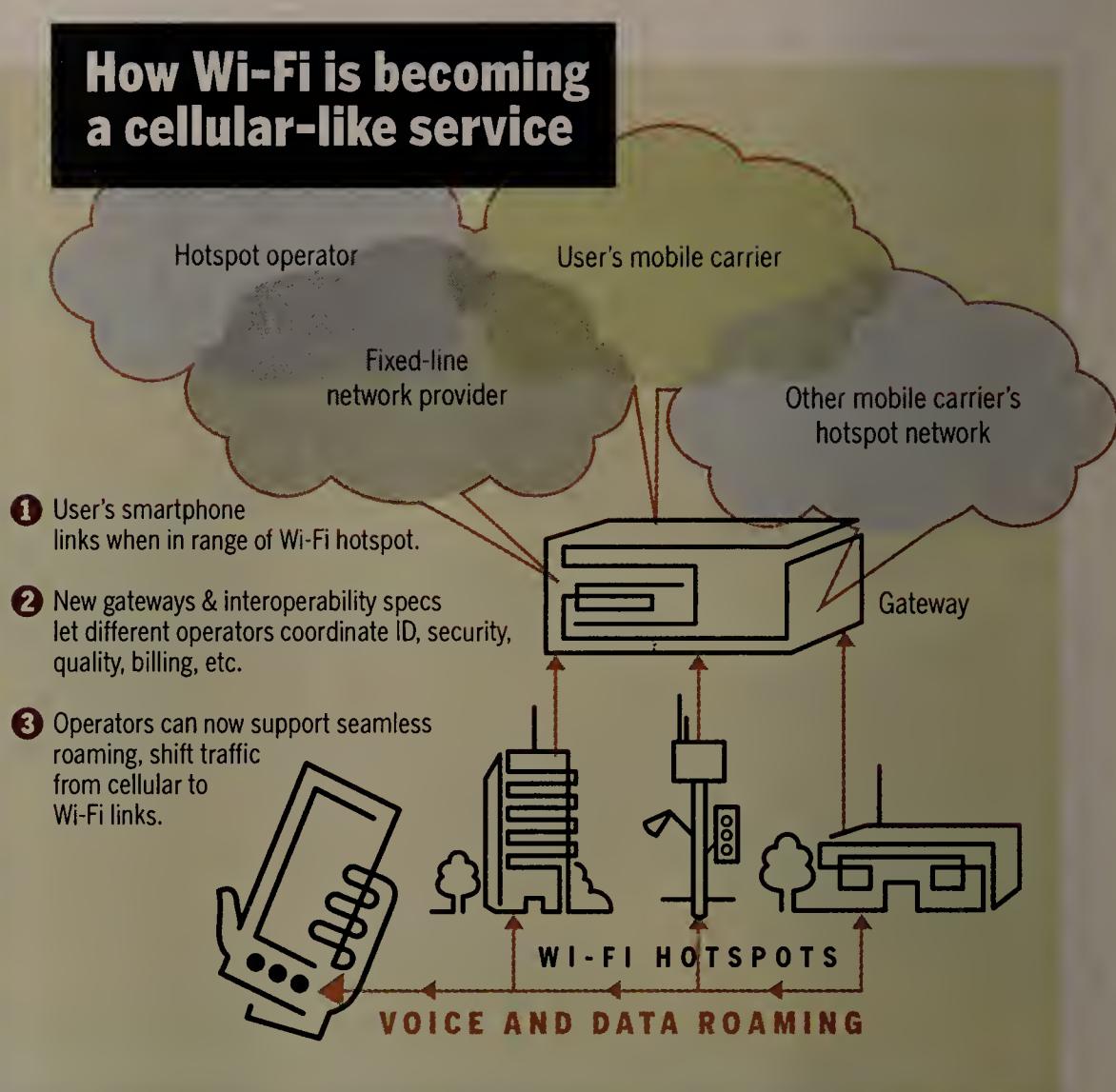
specifications now make it possible to truly integrate Wi-Fi with the carrier's core services, and to add intelligence that makes 3G offload and an array of other value-added services really viable, Borg says. Carriers can authenticate a user via a Wi-Fi connection, secure the link, share information with roaming partners for seamless handoffs between access points, and potentially bill for some of all of this added value.

Will this mean the end of free Wi-Fi? "Let's put it this way: Free Wi-Fi ended a while ago," he laughs. "Mostly [free Wi-Fi today means] you get islands of connectivity in some retail locations." The real value, he argues, is being able to aggregate thousands of hotspots, and provide cellphone-like ease of use, security and services.

Consider these announcements in the run-up to MWC, which starts today:

- A Wi-Fi Alliance whitepaper last week outlined the "Wi-Fi Certified Passpoint" project, which creates a set of specifications to create an "interoperable platform to streamline Wi-Fi access in public hotspots." First Passpoint features are due in mid-2012: devices automatically identify and connect to Passpoint networks with no user intervention, automatic network authentication, and WPA2-Enterprise to secure the link.
- The Wireless Broadband Alliance, a collection of network operators, announced successful tests of what WBA calls the "Next Generation Hotspot," based in part on Passpoint and other WFA specs. The specs and guidelines handle automatic authentication techniques, handoffs and identity management. The goal, says WBA Chairman Chris Bruce, is "to make it as easy and seamless to connect to Wi-Fi hotspots as it is to make a cellular phone call." Production deployments are likely to start in early 2013.
- Greenpacket says it completed two related trials: one with a carrier to stream smoothly IP TV video between 3G and Wi-Fi networks; the second with Stoke, using the latter's newly announced Wi-Fi Exchange gateway, to switch smartphone sessions seamlessly between 3G and Wi-Fi networks.
- WeFi, a Wi-Fi network provider, will show its WeANDSF software, which crowdsources real-time details of active Wi-Fi access points and lets operators control where and how their subscribers can connect to either Wi-Fi or cellular networks.
- Base station vendor Ericsson announced this week that it's buying BelAir

How Wi-Fi is becoming a cellular-like service



Networks, a Canadian Wi-Fi vendor that specializes in outdoor, high-performance Wi-Fi radios. In a statement, Ericsson said the deal "will help accelerate the integration of Wi-Fi and cellular technologies."

- Alcatel-Lucent will build a live network at MWC of metro cells and Wi-Fi, based on its lightRadio Wi-Fi architecture, letting smartphone users authenticate on Wi-Fi using their handset's SIM card, and then move between both networks.
- Wi-Fi vendor Ruckus Wireless will demonstrate its just announced SmartCell product line, which are carrier-class, multi-radio, 802.11n Wi-Fi access points that can incorporate 3G or 4G radios for cellular coverage.

Carrier interest is already spurring Wi-Fi gear sales. Dell-Oro Group, a market researcher, estimates that the growth rate of wireless LAN access point sales jumped from a range of 40% to 80% per quarter in late 2010 and early 2011, to well over 100% per quarter later in the year. The main cause for the surge was Wi-Fi deployments by various network operators, says analyst Chris DePuy.

"These providers want to differentiate their service, and when you are using a smartphone

and it goes very fast, you're happier," he says. "I can't put it any simpler than that." And that satisfaction is affordable: Wi-Fi deployments in the unlicensed bands is vastly cheaper than buying spectrum, leasing real estate, building towers and investing in base stations. "Wi-Fi with all its shortcomings can solve many of those problems for very dense areas at a far lower cost," DePuy says.

New York City-based Towerstream, which specializes in last-mile 4G wireless connectivity for businesses, tested the idea of adding Wi-Fi connectivity, via Ruckus Wireless gear, to its network and backhauling the resulting traffic over its existing gigabit wireless backhaul links. Every Wi-Fi hotspot plugs directly into this high-capacity backhaul network. Now, the company offers more than 1,200 access points in Manhattan, is expanding availability in San Francisco and is in talks or trials with several U.S. carriers, which it won't name.

"Today, people are spending much more on smartphones and data plans," says Arthur Gifakis, Towerstream's vice president of engineering and network operations. "If you've got a \$300 smartphone and a \$30-a-month data plan, the subscribers better have a quality experience." ■

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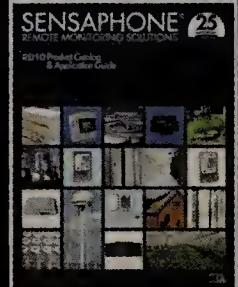
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■ Editorial Index

Alcatel-Lucent	30
Amazon	6, 26, 28
AppFog	25, 28
Apple	6, 8, 12, 16, 24, 25, 34
AT&T	17, 25
Brocade	14
Cisco	3, 10, 14
Cloud Foundry	25
Cloud Technology Partners	21, 22, 28
CloudBees	21, 25, 26, 28
Dell	8, 14
Engine Yard	25
Ericsson	30
Facebook	8, 10, 34
Google	6, 10, 12, 21, 25, 34
Greenpacket	30
HP	6, 8, 14, 18
IBM	14, 21, 25
Juniper	6, 14
LongJump	25
Microsoft	6, 8, 10, 21, 25
Motorola	17
NEC	14, 16
Nessoft	17
Oracle	21, 28
Red Hat	21, 22, 25
Research in Motion	6
RSA	4
Ruckus Wireless	30
Salesforce.com	20, 21, 25, 28
Skype	10
Software.com	34
Sony Music Entertainment	34
Towerstream	30
Truste	6
Verizon	8
VMware	22, 25
WiFi	30
Wintek	34
Zimmer	21, 28

■ Advertiser Index

Advertiser	Page #	URL
Brocade	5	www.brocade.com/everywhere
A-Neutronics	32	www.a-neutronics.com
Cablesys	29	cablesys.com/nw
Cisco	23	cisco.com/go/cloudverse
dtSearch Corp.	32	www.dtsearch.com
IBM Corp	36	ibm.com/cloudsolutions
Infoblox	13	www.networkworld.com/webcasts/infobloxvalue
ITWatchdogs	31	www.itwatchdogs.com
Microsoft Corporation	2	Microsoft.com/readynow
Sensaphone	31	www.sensaphone.com
Server Technology	31	www.servertech.com
SonicWall	7	www.sonicwall.com/optimize
Sungard	9	www.sensaphone.com

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BACKSPIN : BY MARK GIBBS

Cellphones, bees, Apple and sacrifice

I JUST received an email from the progressive organization SumOfUs.org that contained a letter from two people, Guo

Rui-Qiang and Jia Jing-Chuan, who worked in a factory in China run by a Taiwan company called Wintek.

Wintek is a half-billion dollar enterprise with more than 44,000 employees, and one of its lines of business is assembling touchscreens for the Apple iPhone.

The letter from Guo and Jia, sponsored by SumOfUs, is an appeal for public pressure to be put on Apple to address what I can only call a serious crime that was committed by Wintek's management and first reported last year.

The crime was having workers clean the screens with a solvent called n-hexane that is well-known to be hazardous without proper safety precautions. As a result, more than 100 workers have been hospitalized, in some cases for upward of six months, with symptoms that include nerve damage (as in the cases of the letter's authors) and even paralysis.

Now, stay with me here because this may seem like a departure. Quite some time ago I wrote about a theorized connection between a very worrying phenomenon called colony collapse disorder in apiaries and its possible connection with cellphones.

In case the world of beekeeping hasn't overlapped with yours, colony collapse disorder is a mysterious worldwide problem that is causing bees to disappear and no one knows why.

In my column I pondered the question, "If we find out that cellular phones are indeed the problem, will we stop using them?" My point

was to ask how committed we are to our cellphones. The question wasn't about whether we could give up cellphones, but rather, whether we would keep them even if it meant that we wiped out the bees.

Since I wrote that piece further research has more or less ruled out cellphones being the causative factor, but the global decimation of bee colonies has, sadly, continued.

So, what does this have to do with Chinese workers being poisoned by n-hexane on Apple's iPhone assembly line? Simple: You now know what's going on. If the bees were being wiped out by your cellphone, would you stop using it? I'm betting that for many people, the choice between bees and being able to text wouldn't be a hard one — the cellphone would win.

But what of the choice between your cellphone and people? That shiny, cool device that you love represents a non-trivial health risk to many low-paid foreign workers. If you know people are being harmed by the things you buy, what will it take for you to demand greater transparency and accountability and, crucially, what will you sacrifice to see those goals met?

Will you stop buying iPhones in protest? Will you sign the petition to demand that Apple's CEO, Tim Cook, makes certain that those injured workers are compensated? Or will you just shrug and fondle your cool gadget, giving as much thought to the low-paid workers who made your cellphone at the cost of their health as some of you might have given to the bees? ■

Gibbs be in Ventura, Calif. Tell him where you be at backspin@gibbs.com.



NETBUZZ : BY PAUL MCNAMARA

A 1985 gift to Jobs meets 2012 copyright law

LAST WEEK we learned that not even reverence for the memory of Steve Jobs can protect a YouTube video from a copyright-wielding entertainment industry behemoth.

We also learned that the blocking of such videos can work in strange and mysterious ways.

The background: A video tribute produced by Apple employees in 1985 for Jobs to celebrate his 30th birthday, first widely circulated on news sites and blogs after his death last October, was recently yanked off of YouTube by Sony Music Entertainment.

The five-minute film, a photo montage of Jobs' early life and Apple accomplishments, is set to the song "My Back Pages" by Bob Dylan, an SME artist. The takedown message on YouTube reads: "This video contains content from SME, who has blocked it in your country on copyright grounds."

(The Internet being the Internet, SME has not been able to erase the video altogether — at least not yet — as it is still available on the website NDTV, New Delhi Television.)

After Jobs died on Oct. 5, 2011, the clip was posted to Facebook by former Packeteer CEO Craig Elliott, who worked at Apple when it was made. From there it was moved to YouTube by *Technologizer* editor Harry McCracken, who wrote:

"On February 24th 1985, Steve Jobs turned thirty. His Apple coworkers helped him celebrate by creating a short film for him. They set it to the wonderful song 'My Back Pages' by one of Steve's idols, Bob Dylan, and filled it with images from Jobs' first three decades. You know some of them, but only some. And they include many ones of a happy,

relaxed, even silly Steve Jobs that most of us never got to see."

McCracken noted a few days later that the video had drawn more than 200,000 viewers.

Many others picked it up, too. Among the sites showing the now-unwatchable video are: *PCWorld*; Peter Kafka's blog at *AllThingsD*; *Business Insider*; Philip Elmer-DeWitt's blog on *Fortune*; *International Business Times*; *Cult of Mac*; *The Mac Observer*; *MacDailyNews*; *The Next Web*; *The Geek Center*; *AppleWebMaster*; *BuzzFeed*; and The Venture Edge blog.

While I don't know when the video was removed from YouTube, the most recent comment on McCracken's *Technologizer* post indicated that it was still accessible four weeks ago. And the fact that I wasn't able to find any complaints about its removal on any of the sites that hosted it had me thinking it wasn't disabled all that long ago.

Even McCracken wasn't aware that the video he had posted was blocked until I let him know.

And that's where things got stranger, because while McCracken at first saw the same takedown notice that I and everyone else was seeing, he later that night reported that the video had been restored, or at least that he could see it again. Turns out, though, that the discrepancy was apparently a function of YouTube weirdness that allows the original poster — and only the original poster — to continue to see a video once it has been blocked and provided they are logged in to YouTube.

Don't ask me why. By the way, Jobs would have turned 57 last Friday. ■

Do you have your own long-lost Steve Jobs video? The address is buzz@nww.com.

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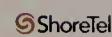
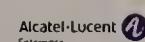
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